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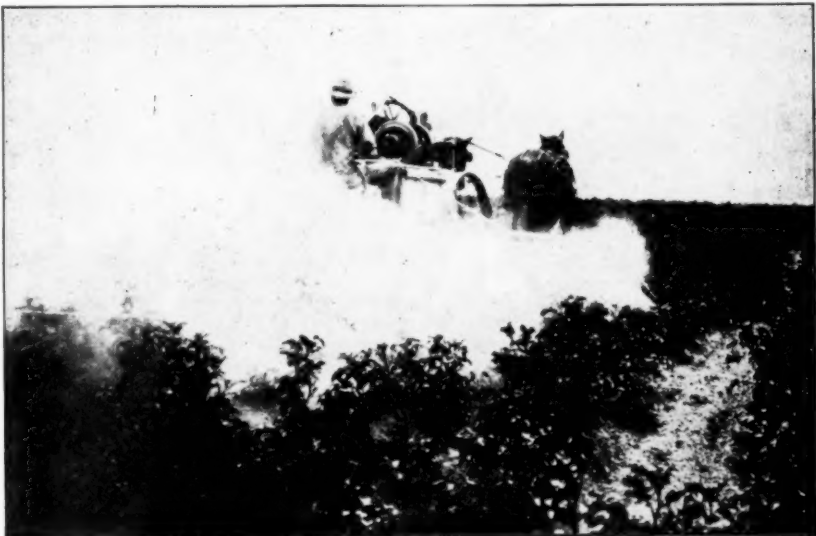
VOL. III. NO. 11

NOVEMBER, 1926

THE RESULTS OF EIGHT YEARS OF PRACTICAL POTATO SPRAYING IN PENNSYLVANIA

E. L. Nixon

50.81
From the standpoint of potato spraying Pennsylvania is one of the States frequently referred to as a border State, i.e., it lies south of Vermont and New York with their well known long term experimental results on potato spraying, and north of her more southern sisters, with no such results to show. Therefore, it has been concluded that **profitable** potato spraying in the border States is questionable.



The type of potato spraying that is proving the practice to be profitable. Two-hundred pounds pressure or better, 125 gallons per acre. Nozzles adjusted to give the optimum effect. 8-8-100 bordeaux mixture.

TABLE

	1918	1919	1920	1921	1922	1923	1924	1925
No. Counties	12	26	46	57	63	63	64	45
No. demonstrations	32	224	318	402	447	220	174	125
No. acres sprayed	314	1787	6192	10140	16680	23000	28646	*
Av. yield per acre sprayed	142	169	258.3	223.5	220	257	230.7	256
Av. increase per acre	34.8	42.9	74.7	74.3	66	58	66.6	78
Av. percent increase	32.2	34.2	41.4	47.7	44	30	40.4	44
Av. cost per acre	\$ 8.26	10.85	11.03	10.34	11.00	11.00	11.00	11.00
Av. No. times sprayed	5	5	6	6.5	6.8	7	7	7

* Follow-up work only done on this project in 1925. Hence no accurate figures collected for total number of acres sprayed.

In citing this table of results I am fully aware that it is not made up of orthodox experiments. The results are taken from mere demonstrations. The plots sprayed were from four to forty acres in size with four to eight unsprayed rows left the full length of the field, ranging from 200 to 1000 feet. At digging time no less than two rows of each area were dug and the yields weighed or measured. Care was always taken to select sprayed and unsprayed areas on as uniform conditions as possible, as to soil, fertilizer, etc.

Whether or not these demonstrations can be accepted as bonafide from the Experiment Station Worker's view point, they serve their purpose in showing to the potato growers the profitableness and practicability of spraying.

An investigation of the potato spraying situation was made in Pennsylvania, in 1917, and revealed the following facts:

1. That newspapers and farm journals were carrying the news that potato spraying in Pennsylvania and other border States, was unprofitable.

2. That most of the growers were of this same belief.

3. That there was no data in a single county of the State to show that potato spraying was a profitable operation.

4. That there was some question in the minds of experiment station workers as to the profitableness of this practice.

The study further revealed that the reasons for the skepticisms on this practice were:

1. That potato spraying is profitable only in regions where late blight is frequent and serious.

2. That the growers had never learned the art of preparing their own home-made bordeaux mixture on a large scale in a practical way, and consequently most growers who did the little spraying that was done were using proprietary mixtures costing from four to ten dollars for enough of the material to make 100 gallons of an 8-8-100 mixture.

3. That the machinery for applying the spray was not standardized. This matter had been left wholly to the manufacturers and a skeptical crowd who figured if not much is invested not much will be lost.

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4. Consequently spray machines were common which could not maintain a pressure of over 150 pounds, nor apply over 60 gallons per acre.

5. Indeed many "so-called sprayers" were used occasionally, capable of developing no pressure at all. They were the revolving disc kind that were said to make "quite a fog".

6. A single nozzle to the row was all that was ever used. To be sure, some "sprayed" six rows at a time where speed was more to be desired than efficiency.



The type of potato spraying that is proving the practice to be unprofitable. One-hundred to one-hundred fifty pounds pressure, fifty to sixty gallons per acre.

To overcome these misconceptions, and to prove the profitability of potato spraying, demonstrations were conducted.

1. To show the value of high pressure over low or no pressure.
2. Home-made bordeaux mixture over proprietary copper sprays.
3. The value of three nozzles over one nozzle per row.
4. The value of 100 gallons or more of spray mixture per acre over 60 or less per acre per application.
5. The value of seven or more sprays as compared with six or less per season.

6. To show the value of systematic timely spraying over slipshod irregular spraying.

7. And finally to show that potato spraying is a **one man** job and can be made to work in with the farmer's already over-crowded schedule.

As a result of these demonstrations the following conclusions have been arrived at:

1. That proper potato spraying is the most profitable operation in connection with potato growing.

2. That proper potato spraying consists of:

a. **Time:** Seven applications are more profitable than six.

Weather conditions are a more important consideration than "at ten day or two week intervals."

b. **Manner:** Three adjustable nozzles per row, two hundred pounds pressure, and one hundred gallons per acre, per application are minimum requirements.

c. **Material:** Home-made bordeaux mixture is the most economical and the most effective material to use.

3. That Standardized spray machinery meeting the requirements of efficiency and economy is a very great need of the potato growers.

4. That more potato growers need information on the **practical** preparation and **application** of bordeaux mixture.

COPPER DUSTS AND SPRAYS ON POTATOES IN KANSAS¹

R. P. White

Foliage diseases of the potato are of minor importance in Kansas. The commercial potato acreage is grown largely in the eastern part of the state and is almost entirely limited to the Kaw Valley. The largest part of the crop is dug during the month of July, and whatever foliage injury does occur usually appears late in the growing season, after the plants have approached maturity, or have been hastened in this direction by unfavorable climatic conditions, the chief of which are excessive temperatures and drought.

The injury, therefore, which results from early blight, tip-burn, and leaf hoppers, generally occurs after the crop is already prematurely ripened by climatic conditions. Late blight has never been observed in this state. Occasionally, however, as in the years 1917 and 1919, an epiphytotic of early blight will occur early in June, causing considerable reduction in yield. It was the epiphytotic of 1917 which was responsible for the origin of the experiments described in this article, and in part already reported by Stokdyk and Melchers.²

1. Contribution No. 256, Department of Botany and Plant Pathology, Kansas Agricultural Experiment Station.

2. Stokdyk, E. A., and Melchers, L. E. Potato disease control in Kansas. Kansas Agricultural Experiment Station Bulletin 231; 45 pp., 16 Figs., 1924.

In the years 1918 and 1919, the experiments on spraying potatoes in Kansas with Bordeaux mixture were conducted at Manhattan, a point which is a considerable distance from the main potato growing region of the Kaw Valley. Rainfall rapidly becomes the limiting factor to potato production westward from Shawnee County. Consequently, the results obtained in these two years were of little scientific value, due to the unfavorable climatic conditions under which the crop was grown, the almost complete absence of foliage troubles until late in the growing season, the limited amount of spray equipment at hand, etc. In 1919 there was an epiphytotic of early blight in the commercial potato growing sections of the Kaw Valley, and had the experiments been conducted this year at some point where early blight was a factor, significant results might have been obtained. From 1920 to 1925, inclusive, the experiments have been located in the commercial potato growing sections, but foliage diseases over this six-year period have played a very minor role in the production of the crop, due to their late appearance or virtual absence.

The experiments on spraying and dusting of potatoes have been conducted annually in the hopes of another epiphytotic of early blight. Commercial methods of production, power machinery for the application of the fungicides, etc., were used in the work, on an extensive scale. An epiphytotic of foliage diseases has not occurred during the six-year period included by these tests, however, and the results that have been obtained are of value only when viewed from the standpoint of the influence of copper dusts and sprays upon yield in the absence of foliage disorders. These are of interest in light of the article by Folsom in the *American Potato Journal*, Vol. III, No. 5, for May, 1926.

These experiments have been conducted on plots of one-half to one acre each, every year, each sprayed or dusted plot being separated from the next sprayed or dusted plot by a check plot of the same size, receiving only arsenical sprays or dusts for the control of the potato beetle. * The probable errors of the field experiments each year have been calculated on a basis of the variations in the check plots, using the formula:

$Ed = (\text{the square root of } 2)(0.6745)(\text{the square root of } \Sigma d^2 \div n - 1)$
The algebraic sum divided by the number of results was calculated as the average increase each year, when more than one plot was included receiving either a liquid Bordeaux treatment or a copper dust treatment. The probable error of the average increase for each year's results, as well as for the six years' results, was calculated by the formula:

$$Ed = \text{the square root of } [E_1^2 + E_2^2 + (E \text{ sub } n)^2] \div n$$

The results obtained by the use of liquid Bordeaux, of all strengths used, and of copper dusts on potatoes, as used in Kansas over the past six-year period, are summarized in Table I.

Table I.—Results of Copper Sprays and Dusts on Yield of Potatoes in Kansas, 1920 to 1925 inclusive

Treatment	1920	1921	1922	
Liquid Bordeaux	--17.8±6.8(6)*	±21.7±12.7(6)	±21.5±6.25(4)	
Copper Dusts			26.6±11.7(4)	
	1923	1924	1925	Average
Liquid Bordeaux	--8.1±6.6(3)	5.6±3.7(5)	2.4±5.4(5)	6.6±3.7
Copper Dusts	17.0±19.6(2)	1.4±4.6(2)	1.7±9.5(1)	7.5±4.4

* Numbers in parentheses indicate the number of plots.

In no instance was a significant increase or decrease in yield obtained from the use of the copper fungicides. In the year 1920, as many as four applications were made to some of the plots without apparently benefitting the yield. In fact, during this year, a decided, though not significant, decrease in yield resulted on all plots receiving applications of liquid Bordeaux, as compared with the checks.

The explanation of these facts seems clear to one associated with early potato production under the peculiar climatic conditions of eastern Kansas. Several factors are evidently involved, chief of which are: (1) early maturity of the crop, (2) rapid maturing of the crop due to excessive temperatures and limited rainfall, and (3) practical absence of foliage injury due to disease until late in the growing season.

* Editorial note.—The readers who are not familiar with the terms of probable error should omit the next two paragraphs and the table. The application of the probable error formula strengthens the results of experiment and is valuable to the scientific workers.

CROP AND MARKET NEWS

POTATO PRICES HIGHER; CROP ESTIMATE INCREASED

(Contribution from the Fruit and Vegetable Division, Bureau of Agricultural Economics, U. S. Department of Agriculture)

The old saying that "whatever goes up must come down again" was more applicable to the potato markets in November, 1925, than

this year. The extremely sharp rise of prices about the end of October, 1925, was followed by a November decline almost as great, but this season the market has shown a more healthy development and the gradual price advances have been fairly well maintained. During the month ended on November 10, f. o. b. quotations and terminal market values advanced 25 cents to 50 cents per 100 pounds, and there has been no sudden relapse.

The shipping-point situation was firm to strong; in a few sections both growers and shippers were holding for higher prices. Western New York f. o. b. prices were exceeding those in any other district. Sacked Round Whites were bringing about \$2.60 per 100 pounds at New York points, while the limited number of sales of bulk Green Mountains averaged around \$2.50 in Aroostook County, Maine. Country dealers in the North Central region, as well as those in Colorado, Nebraska and Idaho, were getting mostly \$2.25-\$2.50 for best sacked stock. A month ago, Wisconsin potatoes were at relatively low price levels, but, with the clearance of a lot of the poor-quality stock, the market in that State has advanced more rapidly than in some of the nearby States.

Idaho arrivals were bringing highest prices in city distributing centers, ranging \$3.00-\$3.75 per 100 pounds. Bulk Long Island Green Mountains reached \$3.35 in New York, and the same variety from Maine was jobbing throughout the East at \$3.00-\$3.35. Next in value were Red River Ohios, which sold at \$2.85-\$3.25 in the Middle West. Round Whites from New York and Pennsylvania ranged \$2.75-\$3.25 in the East, while the Chicago carlot market on sacked northern stock was \$2.35-\$2.45. Northern potatoes sold in other midwestern cities at \$2.50-\$3.25.

Shipments from Maine finally caught up with last season's movement to mid-November, totaling about 14,000 cars. The North Central region was still behind last year's corresponding record, but the Long Island section of New York, and Idaho and Washington were exceeding the 1925 shipments to early November. Central California also was far ahead. Carlot movement was fast decreasing from the peak attained in mid-October. About 9,000 cars were shipped during the week ended October 16, compared with 5,500 during the first full week of November. Of that 5,500 cars, Maine furnished more than 1,000, Minnesota 770, Wisconsin 625, Michigan 575, Idaho 450 and New York State 415. Idaho's output was much lighter than a year ago and shipments from Long Island were much heavier. Movement from other leading States was averaging close to the figures for early November, 1925.

Loss of potatoes from cold weather during October was less than usual, and the November estimate of production was increased about 10,000,000 bushels to a total of 360,727,000,—just about midway between last year's short crop and the average production for the past five years. Average yield per acre now appears to be almost 113 bushels, which is higher than any previous season except 1924 and 1912. The general average for the North Atlantic States

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seems to be 153.5 bushels and in the Western States 142.5 bushels per acre. North Central producing sections are expected to average slightly over 97 bushels. South Atlantic States this year harvested about 90 bushels per acre, and South Central States a little more than 73 bushels. Quality of the 1926 potato crop, however, averages slightly lower than in any previous season in 25 years, so that more than the usual loss in sorting and in storage may be expected. Frost injury has been severe in parts of the Northwest and blight has caused some trouble locally in the East.

Compared with the October crop estimate, production in Maine is believed to have increased about 1,500,000 bushels and Pennsylvania's crop may be nearly a million bushels heavier than reported in October. The gain in New York was about 700,000 bushels. Michigan showed the biggest increase of 2,500,000. Montana's crop has been enlarged by 800,000 bushels, while Washington is estimated to have about 2,000,000 more than a month ago. The Washington gain, however, is partly offset by a decrease in Oregon. Nebraska's estimate also was reduced by half a million bushels. Combined production in the 19 important potato-shipping States is now figured at 2 4,785,000 bushels, compared with 246,664,000 in October and 235,239,000 last year.

Cumberland and Salem Counties, N. J.—The results of seed plot tests in which New Jersey second crop seed was used this past season made the demand strong for this seed. Most of the New Jersey certified seed was sold the latter part of September or the first of October for \$7.00 per 150 lb. sack and as high as \$8.50 has been offered since. Southern New Jersey never produced a better crop of seed potatoes. The tubers are medium in size and smooth. The best yields were about 100 sacks per acre. The yield per acre was more than 100 sacks on J. Norton Woodruff's farm, Bridgeton, N. J. on land measured by a state official. This is a large yield when one considers that potatoes grown for seed are planted the first of August and the vines are always green when killed by frost, making immature seed which has greater vitality than mature seed. The income per acre from the certified fields is larger than many of the record crops reported elsewhere. The land values have not increased here being only about \$150 per acre with the leading eastern markets for table stock approximately 100 miles from this section and the seed markets of Connecticut, Long Island, Maryland, Virginia, and northern New Jersey only a short distance.
—Walter M. Peacock.

VERMONT CERTIFIED SEED NOTES

Yield from Vermont certified fields was unexpectedly high, 350 and 400 bushels per acre were not uncommon reports this fall. The

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heaviness in yield was due largely to the protracted growing season, for the set was generally small. Many fields were green and growing during the first week in October, and the tubers more than made up in size for smallness of number per hill. The total crop of Vermont certified seed potatoes is estimated this year at 150,000 bushels. Very little late blight rot has been reported and there has been only a very small amount of freezing injury. Oversize appears to have been the most serious grading trouble.

An important change in the grading rules this year did away with the "modification by waiver" provision. Heretofore, if a buyer of certified seed expressly waived one or more of the rules for grading, copy of the agreement was filed with the Department of Agriculture, and notation of change made on the tag, and the seed could be handled as certified, subject to these qualifications. Under the present rules only those potatoes which have been graded fully within the requirements of the regular standards can be handled as certified seed, and be tagged as such. A red secondary tag, which states that the potatoes on which it is used came from **certified fields**, but that they are **not sorted and graded as certified seed**, is issued for lots which do not qualify under the regular grading standards. The rules were further amended so as to make the maximum weight for potatoes of the round varieties 12 ounces instead of 10.

At the annual meeting of the Board of Directors of the Vermont Certified Seed Potato Growers Association, Mr. L. H. Ball of Randolph Center was re-elected President, Mr. L. K. Osgood of Rutland was elected Vice-President and H. L. Bailey of the Department of Agriculture was elected Secretary and Treasurer, taking the place of Prof. A. H. Gilbert who is at Wisconsin University working for a Doctorate. A new plan of price reporting through the office of the Secretary, in place of the former price fixing committee was adopted.

Buying of certified seed has been brisk during the fall and an unusually high percentage of the crop has been cleaned out for fall delivery. Green Mountains appear to have had the preference in the seed market so far as sales in Vermont are concerned this year.

An extra effort has been made this season looking toward better and more uniform grading. A meeting was held at Montpelier for the instruction of the shipping inspectors, and much time was spent in the field by members of the certification staff checking up on grading, etc.—**Harold L. Bailey, Vt. Dept. of Agriculture, Nov. 1**

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RECENT COMMENTS

Your efforts and sacrifices in behalf of the Potato Association of America and the American Potato Journal are realized and appre-

ciated by the writer. The cause is good and I intend to help so far as I can.—**K. C. Livermore, Honeoye Falls, N. Y.**

I wish to compliment you on the excellent work you are doing in putting out the American Potato Journal.—**F. A. Krantz, University Farm, St. Paul, Minn.**

I have received a great deal of valuable information from the American Potato Journal. It is full of useful material in a very concise form.—**Norman I. Clark, Guelph, Ontario.**

MEMBERSHIP

The membership is constantly increasing. The list of new members below denotes progress. The gain alone in membership of the last two months is approximately three-fifths of the total membership four years ago. L. O. Gratz of Florida has the honor of sending the largest number of new members during the last month. Mr. Lauer of Pennsylvania had this honor the previous month and we are expecting a large list of new members from both of these men again soon. The results obtained by these men can be obtained by others.

Do not forget we want every certified seed grower a member before the December number is published. This is a large task and every one is personally requested to help.

Below is a list of the new members and by whom obtained.—

New Members	Obtained by
H. B. Tabb, Pickerell College, Forest Pk., Ill.	Daniel Dean
F. E. Wilson, Toppenish, Washington	L. D. Sweet
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This fund is growing. Each donation is appreciated and adds new encouragement. It is gratifying to know that the readers are pleased with the American Potato Journal and are ready to lend a helping hand. It is beginning to look as if the secretary-treasurer-editor-business manager would soon have the necessary office equipment such as a typewriter, filing cabinet for letters, receipts, etc. and perhaps a desk in the near future.

One of the donators suggested a gift of one bushel of potatoes. A person to whom he sent this suggestion contributed \$5.00. The Journal must have helped this grower to produce valuable seed potatoes, or he showed good spirit by giving more than suggested.

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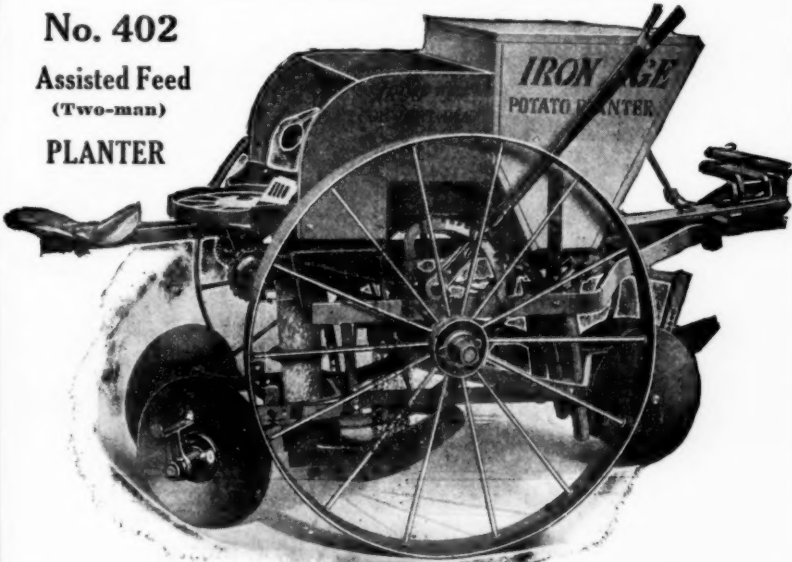
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The editor has often thought of suggesting the value of 2 hrs of labor. Altho there would be no objection to giving the value of one half or one day's labor. The editor has reached the point where he doesn't think anything about giving 10 hours of time in form of work for the association. He considers it a duty worthwhile for the good of the potato industry.

If you feel inclined to send in the value of a bushel of potatoes, or the value of a couple of bushels of potatoes, or more don't hesitate to send it. If every member would do this we could build a permanent foundation. Don't let these editorials frighten you. Your business manager has kept your association in good financial standing. The sole object of these editorials to build up a strong and permanent organization that will accomplish much for the welfare of the potato industry.

Those who have contributed since the October issue are:—

Daniel Dean, Nichols, N. Y.	\$25.00*
Julian E. Dimock, East Corinth, Vt.	10.00
Peter B. Bradley, Boston, Mass.	10.00
K. C. Livermore, Honeoye Falls, N. Y.	10.00
W. B. Barstow, Idaho Falls, Idaho	5.00
Chas. E. Hussy, Presque Isle, Me.	5.00

* Mr. Daniel Dean suggested that his donation be spent in hiring assistance.

INCULCATE BY CALCULATING

Some may say that the publication of a spraying article is out of season. Now is the time to figure whether spraying pays. The editor is inclined to believe that it does pay in most sections. Calculate it for a period of five years and you will know more about it yourself.

ANNUAL MEETING

The annual meeting of the Potato Association of America will be held at Philadelphia, Pa., December 28, 29, 30, 1926. A very interesting program will be rendered. Several papers on each of the following subjects,—certification of seed, storage problems, marketing and studies on how to produce record yields. You will profit by attending this meeting. Make your plans now.

**STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION,
ETC., REQUIRED BY THE ACT OF CONGRESS OF
AUGUST 24, 1912**

Of **American Potato Journal** published monthly at Washington, D. C. for October 1, 1926.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared **Walter M. Peacock**, who, having been duly sworn according to law, deposes and says that he is the **Editor and Bus. Mgr.** of the **American Potato Journal**, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher Potato Association of America, Takoma Park, D. C.

Editor Walter M. Peacock, Takoma Park, D. C.

Business Manager Walter M. Peacock, Takoma Park, D. C.

2. That the owner is: (If the publication is owned by an individual his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding one per cent or more of the total amount of stock should be given.) **None.**

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) **None.**

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or ther securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

Walter M. Peacock, Editor & Bus. Mgr.

Sworn to and subscribed before me this 20th day of October 1926.

(Seal)

F. E. Singleton,

(My commission expires May 18, 1928.)

Form 3526—Ed. 1924.

Note.—This statement must be made in duplicate and both copies delivered by the publisher to the postmaster, who shall send one copy to the Third Assistant Postmaster General (Division of Classification), Washington, D. C., and retain the other in the files of the post office. The publisher must publish a copy of this statement in the second issue printed next after its filing.

REVIEW OF RECENT LITERATURE

MACLEOD, D. J.—A study of the detrimental effect of chemicals on potato tubers.—*Canada Expt. Farms, Div. Bot. Rpt. 1925, pp. 48-50.*

Potatoes were stored in a dry warehouse and in a damp root cellar in burlap containers in contact with certain salts, fertilizer ingredients, fungicides, and commodities of general consumption such as are shipped in bags often used subsequently by potato shippers. Salts, particularly when brought in contact with the moistened surface of tubers, readily dissolve and, entering through the lenticels, infiltrate the surrounding tissues, producing necrosis.

Considering their individual severity of action, Epsom salts, sodium nitrate, potassium nitrate, and coarse common salt were similar and ammonium sulfate, while slightly slower in action, ultimately produces like conditions. Bordeaux dust and acid phosphate produced restricted necrotic sunken areas involving only the tissues adjacent to the lenticels, leaving the unaffected portion of the tubers otherwise firm and normal. The former under dry conditions produced no apparent injury. In dry storage all the salts produced very much modified conditions as outlined. Flowers of sulfur effected no change. Cane sugar resulted in a very slight necrosis around a few lenticels under damp storage but produced no abnormality under dry conditions. Tea, coffee, cocoa, potato starch, corn meal, and bran do not in themselves produce necrosis of the tissues, but by virtue of their capability to retain moisture induce an enlargement of the lenticels and also provide admirable media for the development of rot-producing organisms which are afforded readier penetration through the lenticels.

Deep-eyed as opposed to shallow-eyed varieties seem predisposed to greater ravages by chemicals, due to the natural depressions furnished by the eyes as receptacles for these tissue-destroying agents. Varieties with thin skin like Irish Cobbler were found extremely susceptible to the rapid infiltrating and diffusing action of chemicals. The manifest deleterious effects exhibited make it seem absolutely imperative that all sacks used as containers for potatoes should be thoroughly washed before using to insure complete removal of injurious substances.—H. M. Steece.

MACLEOD, D. J.—(Potato experiments in New Brunswick).—*Canada Expt. Farms, Div. Bot. Rpt. 1925, pp. 43-45.*

For the production of certified seed, close spacing appeared to be much superior to thin planting because of the smaller number of large tubers in the former. Growers of Irish Cobbler and Green Mountain seed potatoes might adopt the practice of planting as close as is consistent with roguing. Selected Green Mountain seed grown on seven types of soil revealed tendencies for soils such as coarse sand and black muck to produce short round tubers and

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Courtenay, British Columbia, Canada

heavier soils such as ordinary sandy loam and clay to yield longer
types.—**H. M. Steece.**

McINTOSH, T. P.—Intervarietal differences in the potato.—
Gard. Chron. Vol. 80: 13-15; 32, 33; 54, 55; 73-75; 95; 108; 134-
136. 1926.

Although the above article is written primarily about British
varieties, the subject is treated in such a way as will interest Amer-
ican readers. Varieties are recognized largely by their grosser
morphological features, although sometimes reference to points of
detail must be made before they can be positively identified. Dif-
ferences in foliage, floral parts and tubers are described and ex-
cellently illustrated. The article is very comprehensive.—**T. P.**
McIntosh.

PAGE, E. M.—Missouri's adoption of the hot formaldehyde
method on a commercial and community scale.—*Potato Assoc.*
Amer. Proc., 12 (1925), pp. 95-97.

An account is given of the adaptation of the hot formaldehyde
treatment to Missouri conditions by the use of central or commu-
nity treating tanks, and data are given on typical costs of treatment
of carload lots of seed potatoes.—**H. M. Steece.**

SALAMAN, R. N.—Potato Varieties.—*Cambridge University*
Press, London, Fetter Lane, E. C., 4. 1926. Price 25 cents.

Dr. Salaman requires no introduction to American readers and

more likely
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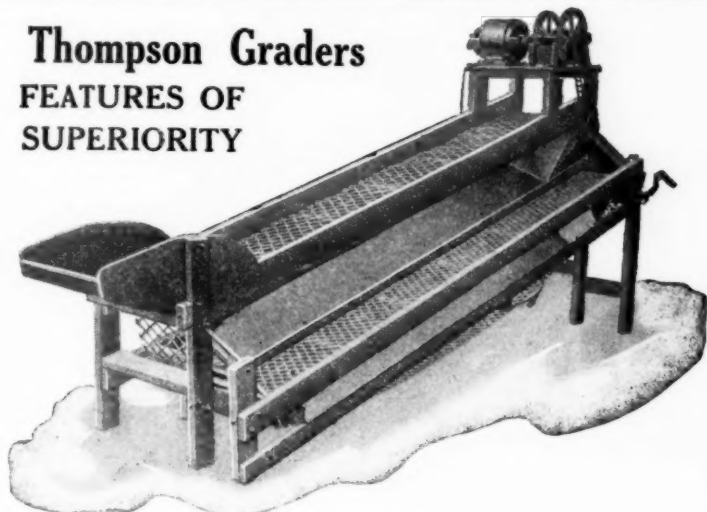
in future the library of no agriculturist, horticulturist or merchant interested in the potato can be considered complete without this most excellent and well written book.

To review it completely would require much more space than is available here, but an adequate idea of the scope of the work will be obtained by a study of its contents, which are as follows:

Chapter I. The Definition of a Potato Variety—Chapter II. Historical Sketch of the Development of Present Day Varieties—Chapter III. The Life of a Variety—Chapter IV. The Methods of Producing New Varieties—Chapter V. The Application of Genetics to Variety Raising—Chapter VI. The Technique of Hybridization—Chapter VII. The Classification of Varieties—Chapter VIII. Classificatory Guide—Chapter IX. Correlations or Linkages—Chapter X. Varietal Differences of Maturity—Chapter XI. The Yield or Crop of the Potato, and the Genetic Factors Affecting the Same—Chapter XII. The Yield or Crop of the Potato, and the Environmental Factors Affecting the Same—Chapter XIII. Yield Trials—Chapter XIV. Varietal Differences in the Production of Ware—

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Chapter XV. Varietal Differences and their Basis in Chemical and Histological Characters of the Tuber—Chapter XVI. Differential Histological Features of the Tuber—Chapter XVII. Varietal Resistance to Disease—Chapter XVIII. Virus Diseases and Varietal Resistance to Their Infection—Chapter XIX. Degenerative Changes of Unknown Origin—Chapter XX. Varietal Differences in Respect to Extremes of Temperature—Chapter XXI. The Adaptation of Varieties to Special Conditions of Soil and Climate—Chapter XXII. Synonymy—Chapter XXIII. The Leaf Index—Chapter XXIV. Varietal Descriptions—Chapter XXV. Common Employment of the Varieties Described—Chapter XXVI. Description of Varieties with Their History and Synonyms

Each of the above chapters may be read with great advantage independently, although cohesion of the whole work is attained by the author's primary consideration to "stress the forces, inherited and environmental, which control the production of these varieties, their behavior and their ultimate destiny." It makes no difference that the varieties are in the main English ones.

Of special interest to American readers will be the chapters on the application of genetics to variety raising, correlations and linkages,

varietal differences of all kinds, yield trials and variety descriptions. The "wildings" and "boltes" mentioned in Ch. XIX will perhaps be new expressions to most readers. It is considered possible, however, that Dr. Salaman's "bolter" corresponds with the American "Giant Hill".

Dr. Salaman's varietal description will be found to be very systematic and complete. It would, in the reviewer's opinion, be a great advantage if there were some international coordination in varietal descriptions and it might be suggested that those engaged on such work should consider at least the system outlined in Ch. XXVI as a basis for future work.

Finality on all questions relating to the potato is not yet reached, and naturally in such a book as this there is on some points room for differences of opinion, a matter which the author liberally admits. However, an unqualified recommendation can be given to all readers to study this book which contains no uninteresting pages and which bears the hall-mark of good workmanship—an indication of infinite pains in its compilation.—**Thomas P. McIntosh.**

SANFORD, G. B.—The relation of some soil factors to the development of common scab of potatoes.—*Potato Assoc. Amer. Proc.*, 12 (1925), pp. 113-120.

From studies by the author at the University of Minnesota, considered together with the results of others, it appeared that there is a fairly short period during which the potato tuber is susceptible to infection by the scab parasite. Therefore, any treatment for control should exert its greatest effect at or about this critical period. One of two general lines of attack which seems hopeful consists in decreasing the susceptible period of the host or finding resistant varieties, and the other is by modifying pathogenicity of the parasite during the susceptible period.—**H. M. Steece.**

SHUTT, F. T.—Correlation between specific gravity, total solids, and starch content of potatoes.—*Canada Expt. Farms, Div. Chem. Rpt.*, 1925, p. 65.

Analyses of 15 samples of Irish Cobbler and 10 samples of Dakota potatoes were said to show a close correlation between specific gravity, total solids, and starch content of the fresh potatoes.—**H. M. Steece.**

SHUTT, F. T.—Fertilizer formulae for potatoes.—*Canada Expt. Farms, Div. Chem. Rpt.*, 1925, pp. 11, 12.

Formulas involving sodium nitrate and ammonium sulfate in equivalent amounts for nitrogen, superphosphate for phosphoric acid, and potassium chloride for potash were applied at acre rates of 1,000, 1,500, and 2,000 lbs. per acre to potatoes in a 3-year rotation of potatoes, grain, and hay in experiments during several years in the Maritime provinces of Canada.

Practically all of the 30 treatments in the experiment gave profitable returns. The information so far obtained indicated that good

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returns may be expected from such mixtures as 3-8-6, 3-6-6, 4-8-6, 4-8-8, or 4-8-10, depending on the character and fertility of the soil. Maximum profit has not as a rule resulted from the heaviest fertilizer application, indications being that an acre dressing of 1,200 to 1,500 lbs. of any of the formulas mentioned would probably suffice under average conditions of soil and season for a maximum yield.—**H. M. Steece.**

QUINN, J. T.—Potato growing in Missouri.—*Missouri Sta. Bul. 240 (1926), pp. 32, figs. 24.*

Field practices and cultural methods are recommended for the production of potatoes, and information is given on soils, crop rotations, varieties, planting, diseases and insects, harvesting, grading and storage, and the culture of late and "straw" potatoes. Many of the recommendations were made on the basis of experiments at the Missouri Experiment station.

Acid phosphate in combination with barnyard manure was shown to give economical returns in fertilizer trials. The maximum yield per acre, 327.9 bu., was obtained following the use of 400 lbs. of a 3-12-4 fertilizer plus 8 tons of barnyard manure with soy beans as a green manure. The greatest net returns with a complete fertilizer accrued from applications of from 400 to 500 lbs. per acre.

Certified northern-grown seed potatoes showed during 3 years an increase over spring home-grown seed of 22.7 bu. for the Irish

Cobblers, and 25.6 bu. for the Early Ohios. Date of planting tests indicated that on the average for central Missouri potatoes planted between March 20 and 30 made the highest yields. Respective average acre increases of 27.1 and 22.8 bu. were obtained by the use of the corrosive sublimate and the hot formaldehyde methods of seed treatment.—H. M. Steece.

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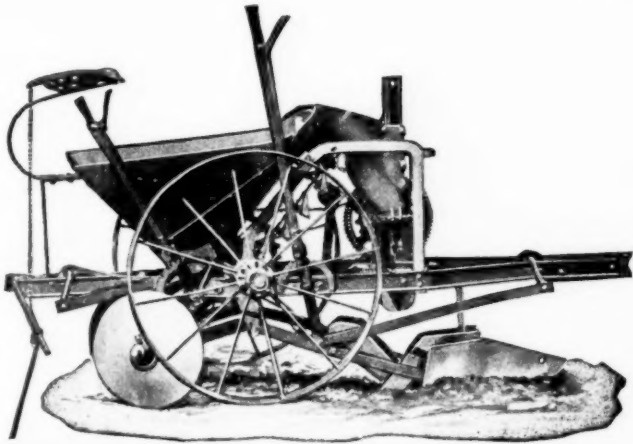
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